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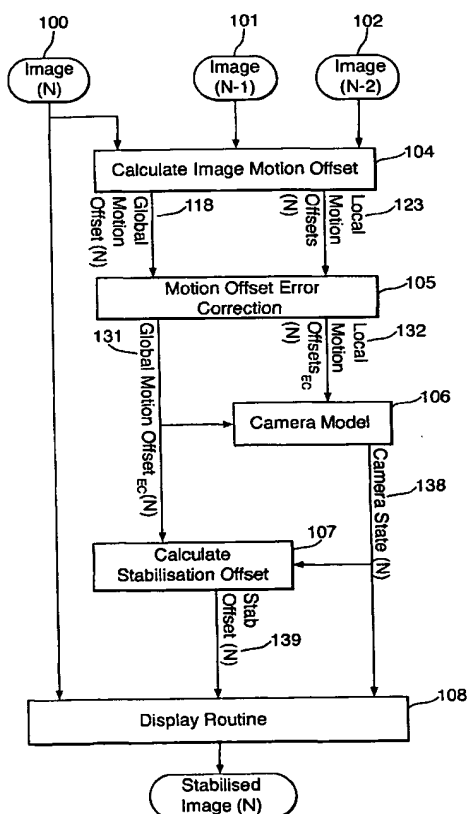
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(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,

[Continued on next page]

(54) Title: IMAGE STABILISATION SYSTEM AND METHOD



(57) Abstract: A system for stabilising video signals generated by a video camera which may be mounted in an unstable manner includes a digital processing means for manipulation of each incoming image that attempts to overlay features of the current image onto similar features of a previous image. A mask is used that prevents parts of the image that are likely to cause errors in the overlaying process from being used in the calculation of the required movement to be applied to the image. The mask may include areas where small movements of the image have been detected, and may also include areas where image anomalies including excess noise have been detected. The invention also discloses means for dealing with wanted movements of the camera, such as pan or zoom, and also discloses means for dealing with the edges of video signals as processed by the system. A method is also disclosed.



KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

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— of inventorship (Rule 4.17(iv)) for US only

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# INTERNATIONAL SEARCH REPORT

International Application No

GB 03/05287

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 H04N5/232

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04N G06T

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, INSPEC, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	EP 0 560 610 A (CANON KK) 15 September 1993 (1993-09-15)  column 1, line 48 - column 2, line 3 column 5, line 10 - column 8, line 5 -----	1, 19, 21  2, 3
A	EP 1 117 251 A (EASTMAN KODAK CO) 18 July 2001 (2001-07-18) paragraph '0015! - paragraph '0034! paragraph '0007! - paragraph '0011! -----	1-3, 19, 21
X A	US 6 459 822 B1 (MEYER PAUL J ET AL) 1 October 2002 (2002-10-01)  column 4, line 11 - column 11, line 34 ----- -/--	1, 16, 19, 21 3-5, 7

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

\*A\* document defining the general state of the art which is not considered to be of particular relevance

\*E\* earlier document but published on or after the international filing date

\*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

\*O\* document referring to an oral disclosure, use, exhibition or other means

\*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*Z\* document member of the same patent family

Date of the actual completion of the international search

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# INTERNATIONAL SEARCH REPORT

International Application No

GB 03/05287

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>HANSEN M ET AL: "Real-time scene stabilization and mosaic construction" APPLICATIONS OF COMPUTER VISION, 1994., PROCEEDINGS OF THE SECOND IEEE WORKSHOP ON SARASOTA, FL, USA 5-7 DEC. 1994, LOS ALAMITOS, CA, USA, IEEE COMPUT. SOC, 5 December 1994 (1994-12-05), pages 54-62, XP010100087  ISBN: 0-8186-6410-X  abstract  page 54, right-hand column, line 5 - line 15  page 55, right-hand column, line 13 - line 25</p>	4,5
A	<p>VELLA F ET AL: "Digital image stabilization by adaptive block motion vectors filtering" IEEE TRANS. CONSUM. ELECTRON. (USA), IEEE TRANSACTIONS ON CONSUMER ELECTRONICS, AUG. 2002, IEEE, USA, vol. 48, no. 3, August 2002 (2002-08), pages 796-801, XP002284976  ISSN: 0098-3063  figures 2,9  page 799, right-hand column, line 1 - page 800, left-hand column, line 10</p>	1,6,7, 11,19,21
A	<p>RINDTORFF H: "BILDSTABILISATION IN CONSUMER-CAMCORDERN FUNKTION UND WIRKUNGSWEISE" FERNSEH UND KINOTECHNIK, VDE VERLAG GMBH. BERLIN, DE, vol. 49, no. 1/2, 1995, pages 15-18,20, XP000512148  ISSN: 0015-0142  figure 2  page 17, middle column, third full paragraph  page 18, left-hand column, line 3 - line 37</p>	12,13,15
A	<p>EP 0 498 730 A (SONY CORP)  12 August 1992 (1992-08-12)  column 4, line 45 - column 6, line 32</p>	12,14
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A	<p>US 5 909 242 A (KOBAYASHI AKIO ET AL)  1 June 1999 (1999-06-01)  column 10, line 18 - column 15, line 63</p>	6-8,18

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/GB 03/05287

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

As a result of the prior review under R. 40.2(e) PCT,  
no additional fees are to be refunded.

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☒ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1,2,3,7 to 11(when depending on claim 2),16,17,19,21

System and method for determining a mask used in video image stabilisation  
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2. claims: 4,5,7 to 11(when depending on claim 4)

Video image stabilisation system with reduced calculation effort  
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3. claims: 6,7 to 11(when depending on claim 6),18

Processing of global motion vector in a video image stabilisation system  
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4. claim: 12 to 15

Processing of global motion vector in a video image stabilisation system  
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# INTERNATIONAL SEARCH REPORT

International Application No

GB 03/05287

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